

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-18 (Canceled)

Claim 19 (Currently Amended) A ceramic multi-layer filter comprising:

at least two layers, said at least two layers comprising the same or different ceramic materials, and a different particle size of ceramic particles in said at least two layers;

one of said at least two layers is a support layer and at least one other layer of said at least two layers is present as a layer with ceramic material with a smaller particle size;

particle surfaces of all ceramic particles in each of said at least two layers, during formation of said at least two layers, are wet entirely or partially with at least one material which wets the surfaces of the ceramic particles and has the same or approximately the same thermal coefficient of expansion as the ceramic particles, and the particle size, particle morphology and particle composition/crystal structure of the ceramic particles is not altered or only slightly altered with about $\leq 1\%$ shrinkage of the ceramic multi-layer filter, and in which at least one of spot and surface connections are formed between the particles by said at least one material; and

pore volume and pore size between the ceramic particles is reduced by the material only slightly or only partially but not by more than 50%.

Claim 20 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein, when more than two layers are present on the support layer, the particle size of the ceramic particles decreases in a direction going away from the support.

Claim 21 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein said at least two layers comprise layers of the same ceramic material.

Claim 22 (Previously Presented) The ceramic multi-layer filter according to claim 21, wherein the ceramic material is silicon carbide or aluminum oxide.

Claim 23 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the ceramic material in all layers of the filter and the material which wets the surfaces of the ceramic particles, have a same composition in all layers of the filter.

Claim 24 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the material that wets the surfaces of the ceramic particles and forms the at least one of spot and surface connection between the ceramic particles is a borosilicate glass, an aluminum borosilicate glass or a lithium aluminum silicate glass.

Claim 25 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the quantity of material, which wets the surface of the ceramic particles and forms the at least one spot and surface connection between the ceramic particles, is selected in terms of size in such a way that the pore volume and the pore size between the particles is reduced only slightly by the material.

Claim 26 (Previously Presented) The ceramic multi-layer filter according to claim 25, wherein the quantity of material, which wets the surface of the ceramic particles and forms the at least one spot and surface connection between the ceramic particles, is selected in terms of size in such a way that the pore volume and the pore size between the particles is reduced by not more than 10%.

Claim 27 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the ceramic particles of at least two layers differentiate from one another in a ratio of 1 : 5 to 1 : 10 in terms of their average particle size.

Claim 28 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the particles of the support layer have an average particle size of 20 to 50 μm .

Claim 29 (Withdrawn – Currently Amended) A process for producing a ceramic multi-layer filter, said ceramic multi-layer filter comprising:

at least two layers, said at least two layers comprising the same or different ceramic materials, and a different particle size of ceramic particles in said at least two layers;

one of said at least two layers is a support layer and at least one other layer of said at least two layers is present as a layer with ceramic material with a smaller particle size;

particle surfaces of all ceramic particles in each of said at least two layers, during formation of said at least two layers, are wet entirely or partially with at least one material which wets the surfaces of the ceramic particles and has the same or approximately the same thermal coefficient of expansion as the ceramic particles, and the particle size, particle morphology and particle composition/crystal structure of the ceramic particles is not altered or only slightly altered with about $\leq 1\%$ shrinkage of the ceramic multi-layer filter, and in which at least one of spot and surface connections are formed between the particles by said at least one material; and

pore volume and pore size between the ceramic particles is reduced by the material only slightly or only partially but not by more than 50%;

said process comprising:

providing at least two ceramic slurries containing at least two ceramic powders of the same or different composition but different particle sizes,

wetting particles of the ceramic powders with a material having the same or approximately the same thermal coefficient of expansion as the ceramic particles, and which does not or only slightly alters the particle size, particle morphology and particle composition/crystal structure of the ceramic powder and which forms at least one of spot and surface connections in the case of a temperature change between the particles, where the material is only added in a quantity that coats the ceramic particles so that the pore quantity and pore size between the particles is reduced by the material only slightly or only partially but not more than 50%;

forming at least one layer from said at least two slurries;

partially or completely drying the formed layer;

forming at least one other layer on the formed and dried layer comprising ceramic particles with a smaller particle size than the already formed and dried layer; and

jointly subjecting the formed and dried layer and the at least one other layer to a temperature increase to form the at least one of spot or surface connection between the ceramic particles by the material.

Claim 30 (Withdrawn) The process according to claim 29, wherein the at least two ceramic slurries contain forming and sintering auxiliary agents.

Claim 31 (Withdrawn) The process according to claim 29, wherein the material comprises a material that is added to the ceramic slurries in powdered form, and the material wets the surface of the ceramic particles when subjected to a temperature increase.

Claim 32 (Withdrawn) The process according to claim 29, wherein the material forms a liquid phase during increasing temperature.

Claim 33 (Withdrawn) The process according to claim 32, wherein the liquid phase has a high surface tension.

Claim 34 (Withdrawn) The process according to claim 29, wherein the material has liquid phase which partially or completely crystallizes during cooling.

Claim 35 (Withdrawn) The process according to claim 29, wherein the material comprises a pulverized material that is homogeneously distributed in the at least two ceramic slurries, and, after drying, is distributed homogeneously on the surface of the ceramic particles.

Claim 36 (Withdrawn) The process according to claim 29, in which the ceramic particles are wet with the material before manufacturing the ceramic slurry.

Claim 37 (Withdrawn) The process according to claim 36, in which the ceramic particles are wet with the material using a chemical method.

Claim 38 (Withdrawn) The process according to claim 37, wherein the chemical method comprises co-precipitation.

Claim 39 (Withdrawn) The process according to claim 29, wherein the temperature increase is performed under air.

Claim 40 (Withdrawn) The process according to claim 29, wherein the temperature is increased to a range between 700°C and 1200°C.

Claim 41 (Withdrawn) The process according to claim 29, wherein the ceramic powders comprise closely fractionated abrasive powders.

Claim 42 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the particle size, particle morphology and particle composition/crystal structure of the ceramic particles is not altered or only slightly altered includes no shrinkage of the ceramic multi-layer filter.

Claim 43 (Previously Presented) The ceramic multi-layer filter according to claim 19, wherein the at least two layers have the same shrinkage.

Claim 44 (Withdrawn) The process according to claim 29, wherein the particle size, particle morphology and particle composition/crystal structure of the ceramic particles is not altered or only slightly altered includes no shrinkage of the ceramic multi-layer filter.

Claim 45 (Withdrawn) The process according to claim 29, wherein the at least two layers have the same shrinkage.